

Master Syllabus
Department of Geography

GEOG 332/532: Climate Change and Modification

Course Description

Study of the variability of climate over time and space, and factors involved. Focuses on past climates, modeling of future climates, and modification at local or microscale. (3 credit hours).

Prerequisite: GEOG 230

Course Objectives

The objectives of the course are to:

- Understand the physical science and environmental processes that result in natural and anthropogenic changes in the atmosphere
- Assess the impact of human activities on climate and vice versa
- Evaluate the models and methods of large-scale climate forecasting
- Identify and evaluate critically the components of small-scale climate changes, such as urban heat islands

Course Rationale

This course is part of both Option IV's General and Professional Meteorologist Tracks, the latter of which is designed to meet the requirements for employment by the National Weather Service (NWS) as a meteorologist (GS-1340). Meteorologists are required to have an understanding of general climate processes and current climate issues, including climate change.

Course Content and Format

The course material focuses quantitative (algebra-based) and qualitative analysis and understanding of the causes of climate change, focusing on climate science. Topics include: the relationships between atmospheric composition, radiation, and temperature; natural and anthropogenic contributors to atmospheric changes; climate models; paleoclimatology; and small-scale climate modifications.

The course format is a combination of lecture and discussion. Students are actively encouraged to participate in discussions, as well as deliver presentations on relevant topics or journal articles.

Textbook Suggestions

Introduction to Modern Climate Change (Andrew E. Dessler), Cambridge University Press. 2012.

Climate Change in the 21st Century (Stewart J. Cohen with Melissa W. Waddell), McGill-Queen's University Press, 2009.

Methods for Evaluating Student Performance

Student performance will be evaluated via some combination of the following methods:

- Examinations
- Homework exercises
- Participation in class discussions
- Group presentations or projects
- Presentations
- Quizzes

Students enrolled in GEOG 532 (graduate level) will be required to complete additional work (such as a term paper, lecture on specialized topic relevant to the course).

Evaluation of the Course

Student evaluation of the course will be accomplished using university (and departmental) course evaluation forms. Departmental evaluation may include peer or chair evaluations.